

REMARKS

This amendment is responsive to the non-final Office Action of October 6, 2008. Reconsideration and allowance of **claims 1-14** are requested.

The Office Action

Claims 3 and 5 were objected to because of minor informalities.

Claim 5 was rejected under 35 U.S.C. 101.

Claims 1-3 and 6 were rejected under 35 U.S.C. § 102(b) over Murphy et al. (U.S. Patent No. 5,901,199).

Claims 4 and 5 were rejected under 35 U.S.C. § 103(a) over Murphy et al.

The Present Application

The present application is directed to a method of tomographic imaging and in particular a CT or MR method for repetitive production of diagnostic slice images of a part of a patient's body. The method has at least two current reference slices images made with the slice image planes preset in such a way that their relative position and orientation in three dimensions agree with the relative positions and orientations in three dimensions of earlier reference slice images. A geometrical transformation is determined which brings all the current reference slice images in alignment with the earlier reference slice images. A current diagnostic image is then created using current image parameters calculated by transforming earlier imaging parameters by the geometrical transformation.

The above description of the present application is presented to the Examiner as background information to assist the Examiner in understanding the application. The above description is not used to limit the claims in any way.

The References of Record

Murphy et al. is directed to a method for aligning radiation therapy beams with a treatment target of a patient. Digitally reconstructed radiographs (DDRs) are generated from an intermediate 3-D image produced from the CT scans. The DDRs are compared with x-ray images taken of the treatment target position

taken at the time of treatment. A transformation equation is used to compare the DDRs and the x-ray images. Page 2, lines 12-21 set forth the disadvantages of this approach.

35 U.S.C. § 101

Claims 3 and 5 have been amended to address the minor informalities presented by Examiner.

Claim 5 has been amended to address the 35 U.S.C. § 101 issues.

**The Claims Distinguish Patentably
Over the References of Record**

Claims 1-3 and 6 are not anticipated by Murphy et al.

More specifically, regarding **claim 1**, Murphy et al. does not disclose determination of a geometrical transformation by which the current reference slice images are brought into agreement with earlier reference slice images of the part of the body, calculation of current imaging parameters by transforming earlier imaging parameters by means of the geometrical transformation, and making of a current diagnostic slice image, the position and orientation in three dimensions of the image plane of the diagnostic slice image being determined by the current imaging parameters. The Examiner refers Applicant to Figures 1-4 and Col. 4 line 20 – Col. 5 lines 10 of Murphy et al. which discloses an aligning method for radiation therapy beams where digitally reconstructed radiographs are compared to x-ray images through the use of a transformation equation. More specifically, Murphy et al. discloses a CT scan used to assemble an intermediate 3-D image which is used to generate a set of at least two digitally reconstructed radiographs (DDR). The DDRs are artificial 2-D projection images that show how the intermediate 3-D image would appear from different angles using hypothetical camera angles. The DDRs are then used to create a lookup table that provides the first derivatives of the translational and rotational measurement of the intermediate 3-D image. The derivatives are then used during treatment to match the actual patient images with the intermediate 3-D image. Murphy et al. does not disclose determining a geometrical transformation by positioning current slice images to coincide with earlier reference slice images. Additionally, Murphy et al. does not disclose calculating current image parameters by

transforming earlier image parameters by the geometrical transformation and using the current image parameters to make a current diagnostic slice image.

Moreover, it should be noted that **claim 1** uses current image slices and earlier images slice to determine the geometrical transformation. Murphy et al. determines the geometrical transformation through use of the intermediate 3-D image and the DDRs. Murphy et al. does not disclose using current image slices to determine the geometrical transformation.

Additionally, **claim 1** creates a current diagnostic image through use of current image parameters which are determined by using the geometrical transformation on the earlier imaging parameters. Murphy et al. does not disclose using the geometrical transformation, determined from current and earlier reference slice images, to determine current image parameters to make a current diagnostic image. There is no disclosure of using a current reference slice images to determine a geometrical transformation or to use the geometrical transformation to create current image parameters for making a current diagnostic image.

Accordingly it is submitted that independent **claim 1** and **claims 2-6** that depend therefrom distinguish patentable over the references of record.

Claim 2 calls for determining the geometrical transformation by identifying reference points in the current reference slice images that agree with corresponding reference points in the earlier reference slices. Murphy et al. does not disclose using current reference slice images along with earlier reference slice images to determine a geometrical transformation.

Claim 3 calls for the geometrical transformation to be determined by a rigid or affine transformation that is defined by a set of transformation parameters. Murphy et al. does not disclose using either rigid or affine transformations in order to determine the points at which the current reference slice images corresponds to the earlier reference slice images.

Claims 5 and 6 have been placed in independent form to avoid claims for a computer-readable medium or an imaging system from depending from a method claim.

Murphy et al. does not disclose calculating a transform which aligns at least two current reference slices images with at least two earlier reference slice images. Nor does Murphy et al. generate a diagnostic image. Rather, Murphy et al. performs a radiation therapy procedure. For these and other reasons, it is submitted that **claims 5, 6, 10 and claims 7-9 and 11-14** are patentable over Murphy et al.

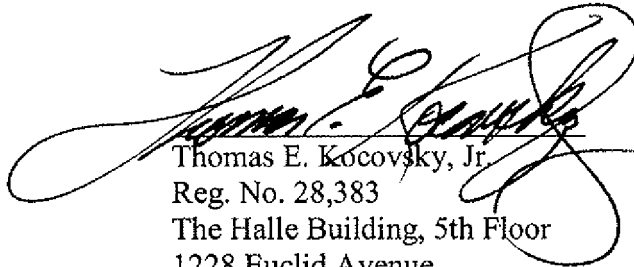
CONCLUSION

For the reasons set forth above, it is submitted that **claims 1-14** (all claims) distinguish patentably over the references of record and meet all statutory requirements. An early allowance of all claims is requested.

In the event the Examiner considers personal contact advantageous to the disposition of this case, the Examiner is requested to telephone Thomas Kocovsky at 216.363.9000.

Respectfully submitted,

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